

In Captain Krusenstern's Memoir on the Lands of the Icy Sea, it is related that 250 versts of the coast of a northern land was very lately explored, which has been called New Siberia; and at the easternmost part of this land the coast took a direction to the north-west, which appeared to render it not probable that it joined the Tschuktzki land: but nevertheless, the coast, in Captain Burney's opinion, may turn to the east; and the Russian discoverer Hederstroom considers that this is the case, and that New Siberia is a prolongation of America. The Tschuktzki people, says the author, would not explore further north than afforded a prospect of reward for their pains, which has led them to some of the islands of the Icy Sea, though there is no evidence of their having yet reached New Siberia. On the whole, Captain Burney is of opinion that Asia and America are part of one and the same continent.

*Additional Facts respecting the Fossil Remains of an Animal, on the subject of which two Papers have been printed in the Philosophical Transactions, showing that the Bones of the Sternum resemble those of the Ornithorhynchus paradoxus. By Sir Everard Home, Bart. V.P.R.S. Read January 22, 1818. [Phil. Trans. 1818, p. 24.]*

In an engraving annexed to Sir Everard Home's first paper upon the above subject, a portion of bone is shown lying upon the scapula, which he considered as a portion of a rib accidentally brought there; but which he now finds to be nearly in its original situation, and is found to resemble nearly the clavicular bone in birds, as far as regards relative position.

The bones of the sternum were first pointed out to the author by Mr. Buckland; and their discovery destroys the analogy between this fossil animal and cartilaginous fishes. On comparing the general form of the sternum with that of the *Ornithorhynchus paradoxus*, a general agreement was discovered between them: they differ in the fossil skeleton having a clavicular bone, which is wanting in the other, and in the *Ornithorhynchus* having a long process from the scapula, which the fossil bone wants.

The fossil animal is ascertained to have lived in water, by the form of its vertebrae; and from the shape of the chest, it must have breathed air; in these respects resembling the *Ornithorhynchus*: but the mode of progressive motion differs: that of the one being the same as in fishes, that of the other the same as in the whale tribe.

Another bone is described in this paper, probably belonging to the same animal, and which the author regards as the first bone of the pectoral fin; which, however, cannot be absolutely determined till the bones of the pelvis are found.

To find any analogy, says the author, between the bones of animals now alive and those of races long extinct, is matter of no small curiosity; but to have discovered an analogy between the peculiarities belonging to the animals of New Holland, by which they are so remarkably distinguished from all others that now inhabit our globe,

and bones in a fossil state, creates a considerable degree of surprise ; and by connecting the present animals with those that are extinct, adds a link to that chain of gradation which is the most interesting to the comparative anatomist and to the geologist.

*An Account of Experiments for determining the Length of the Pendulum vibrating Seconds in the Latitude of London.* By Capt. Henry Kater, F.R.S. Read January 29, 1818. [*Phil. Trans.* 1818, p. 33.]

It has long been a desideratum in science, to determine the precise length of a pendulum vibrating seconds in a given latitude. Most of those who have undertaken this inquiry have endeavoured to find the centre of oscillation ; but as this depends upon the regular figure and uniform density of the body employed, it involves difficulties which may be considered as insurmountable. Despairing, therefore, of success in any attempt founded upon such principle, Captain Kater endeavoured to discover some other property of the pendulum less liable to objections ; and was so fortunate as to perceive one which promised an unexceptionable result.

It is known that the centres of suspension and oscillation are reciprocal ; or, in other words, if a body be suspended by its centre of oscillation, its former point of suspension then becomes the centre of oscillation, and the vibrations in both positions will be performed in equal times. Now as the distance of the centre of oscillation from the point of suspension depends upon the figure of the body employed, if the arrangement of its particles be changed, the place of the centre of oscillation will also suffer a change. Suppose, then, a body to be furnished with a point of suspension, and another point on which it may vibrate, to be fixed as nearly as can be estimated in the centre of oscillation, and in a line with the point of suspension and centre of gravity ; if the vibrations in each position should not be equal in equal times, they may readily be made so, by shifting a moveable weight, with which the body is to be furnished, in a line between the centres of suspension and oscillation ; when the distance between the two points about which the vibrations were performed, the length of a simple pendulum, and the time of its vibrations, will at once be known, uninfluenced by any irregularity of density or of figure. The mode of suspension which the author adopted was the knife-edge, of which the various advantages and disadvantages are pointed out, and the modes of overcoming the latter described.

The pendulum consisted of a thin bar of plate-brass, pierced with two triangular holes at the distance of 39·4 inches from each other, to admit the knife-edges, which were made of wootz, and finished to an angle of 120°, and firmly screwed to brass knee-pieces. The pendulum is prolonged at either extremity by a slip of deal, extending about twenty-two inches beyond the knife-edges. Three weights are employed for the adjustments. The great weight is immoveably fixed beyond the knife-edges ; the second weight slides on the bar,